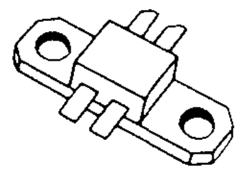
SGS-THOMSON MICROELECTRONICS

SD1424

RF & MICROWAVE TRANSISTORS
800-900 MHz BASE STATION APPLICATIONS

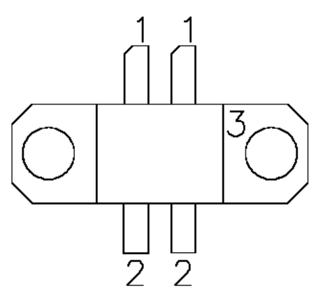
- 800 - 900 MHz
- 24 VOLTS
- COMMON EMITTER
- GOLD METALLIZATION
- INTERNAL INPUT MATCHING
- CLASS AB LINEAR OPERATION
- P_{OUT} = 30 W MIN. WITH 7.5 dB GAIN



.250 x .320 4LFL (M156)
epoxy sealed

ORDER CODE	BRANDING
SD1424	SD1424

PIN CONNECTION



1. Collector
2. Base
3. Emitter

DESCRIPTION

The SD1424 is a gold metallized epitaxial silicon NPN planar transistor using diffused emitter ballast resistors for high linearity Class AB operation in cellular base station application.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	48	V
V_{CES}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	4	A
P_{DISS}	Power Dissipation	87.5	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	– 65 to +150	°C

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.0	°C/W

ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50mA	I_E = 0mA	48	50	—	V
BV_{CEO}	I_C = 20mA	I_B = 0mA	25	30	—	V
BV_{EBO}	I_E = 5mA	I_C = 0mA	3.5	4.0	—	V
I_{CBO}	V_{CB} = 24V	I_E = 0mA	—	—	1.0	mA
h_{FE}	V_{CE} = 10V	I_C = 100mA	20	—	100	—

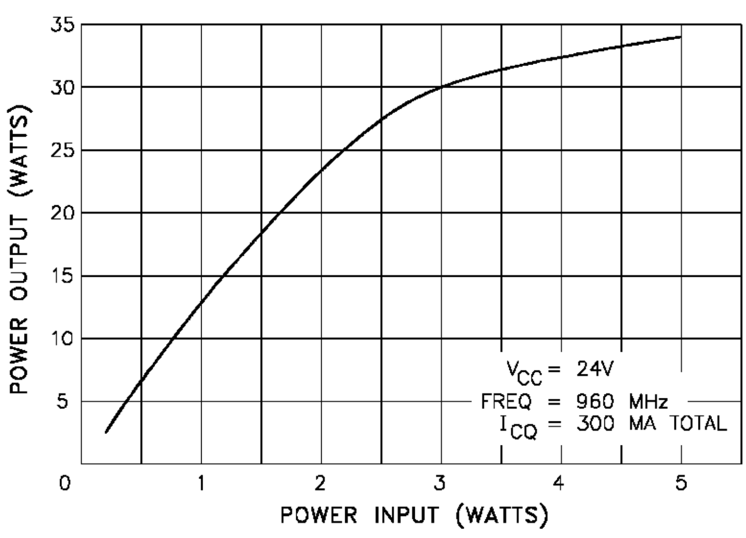
DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 960 MHz	P_{IN} = 5.3 W	V_{CC} = 24 V	30	—	—	W
G_P	f = 960 MHz	P_{OUT} = 30 W	V_{CC} = 24 V	7.5	—	—	dB
η_C	f = 960 MHz	P_{OUT} = 30 W	V_{CC} = 24 V	45	50	—	%
C_{OB}	f = 1 MHz	V_{CB} = 24 V	(each side)	—	20	24	pF

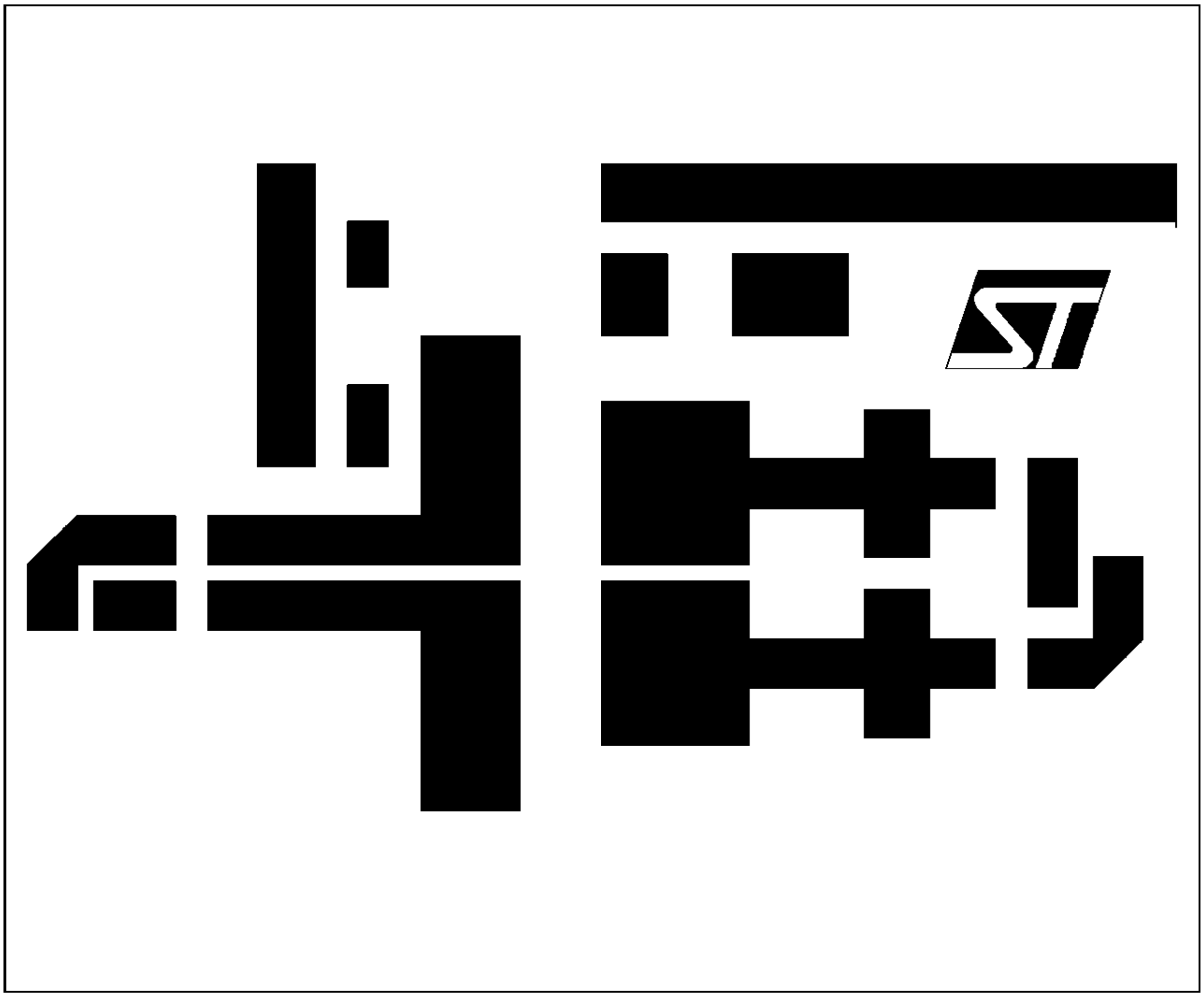
Note: I_{CQ} = 150mA

TYPICAL PERFORMANCE

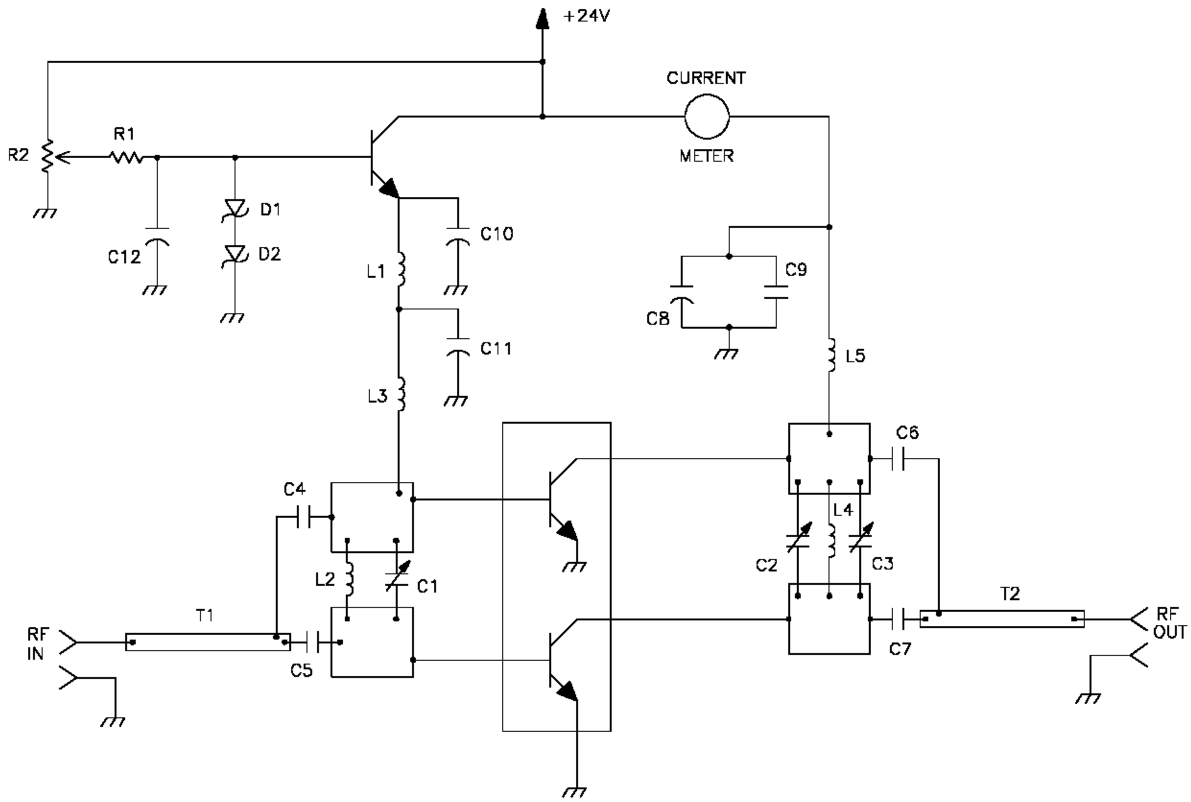
POWER OUTPUT vs POWER INPUT



TEST CIRCUIT LAYOUT



TEST CIRCUIT



C1, C2,
C3 : 0.8 - 8pF Variable Capacitors
C4, C5,
C6, C7 : 62pF
C8 : 22µF
C9 : 180pF
C10 : 47µF, 63V
C11 : 180pF
C12 : 10µF, 63V

D1, D2 : SD1423 Devices

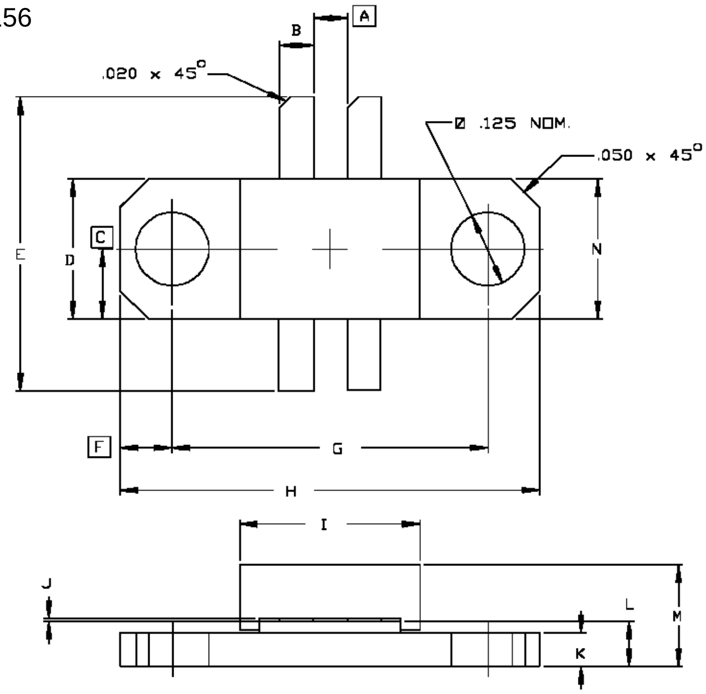
L1, L2 : #22 AWG with Ferrite Core
L3 : 4 Turns, #22 AWG
L4 : 2 Turns, #22 AWG
L5 : 5 Turns, #22 AWG

T1, T2 : λ /4 Transformers

Material: Epsilam 10, Er = 10.5, Height = .050”

PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0156



SGS-THOMSON MICROELECTRONICS	MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.060/1,52	
B	.055/1,40	.065/1,65
C	.124/3,15	
D	.243/6,17	.253/6,43
E	.635/16,13	.665/16,89
F	.092/2,34	
G	.555/14,10	.565/14,35
H	.739/18,77	.749/19,02
I	.315/8,00	.327/8,31
J	.002/0,05	.006/0,15

CONT'D	MINIMUM Inches/mm	MAXIMUM Inches/mm
K	.055/1,40	.065/1,65
L	.075/1,91	.095/2,41
M		.190/4,83
N	.245/6,22	.257/6,53